

Claudio Roncoli

ASSOCIATE PROFESSOR · KU LEUVEN

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VISITING PROFESSOR · AALTO UNIVERSITY

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Research interests

- Modelling and control of traffic systems in presence of automated and connected vehicles
- Integration, management, and optimisation of emerging mobility systems and technologies
- Optimisation of Intelligent Transportation Systems for smart and sustainable mobility
- Traffic flow theory, modelling, and simulation

Professional positions

Associate Professor

CENTRE FOR INDUSTRIAL MANAGEMENT / TRAFFIC AND INFRASTRUCTURE, FACULTY OF ENGINEERING SCIENCE, KU LEUVEN

11/2024 – current
Leuven, Belgium

Visiting Professor

DEPARTMENT OF BUILT ENVIRONMENT, SCHOOL OF ENGINEERING, AALTO UNIVERSITY

10/2024 – current
Espoo, Finland

Associate Professor

DEPARTMENT OF BUILT ENVIRONMENT, SCHOOL OF ENGINEERING, AALTO UNIVERSITY

12/2022 – 10/2024
Espoo, Finland

Visiting Researcher

SCHOOL OF CIVIL ENGINEERING, UNIVERSITY OF SYDNEY

10/2023 – 12/2023
Sydney, Australia

Visiting Scholar

SCHOOL OF CIVIL ENGINEERING, UNIVERSITY OF QUEENSLAND

09/2023 – 10/2023
Brisbane, Australia

Assistant Professor

DEPARTMENT OF BUILT ENVIRONMENT, SCHOOL OF ENGINEERING, AALTO UNIVERSITY

10/2016 – 11/2022
Espoo, Finland

Postdoctoral Research Associate

DYNAMIC SYSTEMS & SIMULATION LABORATORY, TECHNICAL UNIVERSITY OF CRETE

05/2013 – 09/2016
Chania, Greece

Visiting Student

IMT SCHOOL FOR ADVANCED STUDIES

07/2012
Lucca, Italy

Visiting Research Assistant

CENTRE FOR TRANSPORT STUDIES, IMPERIAL COLLEGE LONDON

01 – 07/2011 and 02 – 06/2012
London, UK

Research Assistant/Associate

INDUSTRIAL AUTOMATION LAB / DELAB, UNIVERSITY OF GENOVA

01/2007 – 04/2013
Genova, Italy

Education

Doctoral degree in System monitoring and environmental risk management

UNIVERSITY OF GENOVA

01/2010 – 04/2013
Genova, Italy

Master's degree in Computer Engineering - Production and Services Management

UNIVERSITY OF GENOVA

09/2006 – 07/2009
Genova, Italy

Bachelor's degree in Computer Engineering

UNIVERSITY OF GENOVA

09/2003 – 09/2006
Genova, Italy

Participation in Research Projects

ACUMEN - Ai-aided deCision tool for seamless mUltiModal nEtnetwork and traffic management FUNDED BY THE EUROPEAN COMMISSION, THROUGH THE HORIZON EUROPE PROGRAMME Coordinator	06/2023 - current
SMARTEDGE - Semantic Low-code Programming Tools for Edge Intelligence FUNDED BY THE EUROPEAN COMMISSION, THROUGH THE HORIZON EUROPE PROGRAMME Project Partner Lead	01/2023 - current
ALCOSTO - Adaptive and Learning Control strategies for Sustainable future Traffic Operations FUNDED BY ACADEMY OF FINLAND Principal Investigator	09/2022 - current
AIForLEssAuto - Artificial Intelligence for Urban Low-Emission Autonomous Traffic FUNDED BY ACADEMY OF FINLAND Subproject Principal Investigator	01/2022 - current
Finest Twins - Smart Cities Centre of Excellence FUNDED BY THE EUROPEAN COMMISSION, THROUGH THE HORIZON 2020 PROGRAMME Smart mobility stream leader	12/2019 – 11/2023
ULTRA - Ubiquitous Localization, communication, and sensing infrastrucTuRe for Autonomous systems FUNDED BY ACADEMY OF FINLAND Subproject Principal Investigator	01/2020 – 12/2022
Profi4 - Competitive funding to strengthen Universities' research profile FUNDED BY ACADEMY OF FINLAND Smart mobility theme Co-Principal Investigator	09/2018 – 08/2022
CMON - Connected Mobility Now FUNDED BY HENRY FORD FOUNDATION FINLAND Co-Principal Investigator	06/2017 – 06/2022
WISE-ACT - Wider Impacts and Scenario Evaluation of Autonomous and Connected Transport FUNDED BY THE EUROPEAN COMMISSION, THROUGH A COST ACTION Working Group leader	10/2019 – 03/2022
FDMM - Future Digital Mobility Management FUNDED BY EIT URBAN MOBILITY Project partner Principal Investigator	01/2021 – 12/2021
TRA2020 - The Transport Research Arena 2020 in Helsinki FUNDED BY THE EUROPEAN COMMISSION, THROUGH THE HORIZON 2020 PROGRAMME Work-package leader	04/2018 – 10/2020
MULSIMCO - Multilevel Traffic Simulation with a Cognitive Basis FUNDED BY ACADEMY OF FINLAND Faculty Investigator	05/2017 – 08/2018
SIMSIG - Traffic simulation for intelligent signal control FUNDED BY RSM LTD Project leader	06/2017 – 05/2018
TRAMAN21 - Traffic Management for the 21st Century FUNDED BY THE EUROPEAN COMMISSION, THROUGH AN ERC ADVANCED GRANT Postdoctoral Research Associate	05/2013 – 02/2018
TIP - Transport Integrated Platform FUNDED BY ENI R&M - SECONDARY LOGISTICS Research assistant / Research associate / Software designer and developer	01/2007 – 04/2013

SECTRAM - Sécurité du transport de marchandises - Sicurezza nel trasporto merci (Safety for the transport of goods)

04/2009 – 03/2012

FUNDED BY THE EUROPEAN COMMISSION UNDER ALCOTRA (2007-2013)

Research assistant

DaGoT - European Reference Framework on Dangerous Goods Transport

01/2007 – 02/2008

FUNDED BY THE EUROPEAN COMMISSION UNDER THE SIXTH FRAMEWORK PROGRAMME

Research assistant

Teaching activities

Director of the Master's programme in Spatial Planning and Transportation Engineering (SPT)

10/2021 – 09/2024

AALTO UNIVERSITY, FINLAND

Deputy Director of the Master's programme in Spatial Planning and Transportation Engineering (SPT)

08/2019 – 09/2021

AALTO UNIVERSITY, FINLAND

Responsible teacher and main instructor for the Transport Modelling course

09/2018 – 02/2024

PART OF THE SPT MASTER'S PROGRAMME - AALTO UNIVERSITY, FINLAND

Responsible teacher and main instructor for the Traffic Flow Theory course

10/2016 – 04/2024

PART OF THE SPT MASTER'S PROGRAMME - AALTO UNIVERSITY, FINLAND

Deputy responsible teacher and co-instructor for the Traffic Management course

10/2016 – 06/2024

PART OF THE SPT MASTER'S PROGRAMME - AALTO UNIVERSITY, FINLAND

Participation in Educational Projects

ENACT - Education network for automated and connected transport for sustainable cities

01/2021 – 07/2023

FUNDED BY FINNISH MINISTRY OF EDUCATION AND CULTURE

Project Partner Principal Investigator

Boost I&E 2.0 - Boosting Innovation and Entrepreneurship Challenge Project 2021

01/2021 – 12/2021

FUNDED BY EIT URBAN MOBILITY KIC

Activity Lead

Boost I&E - Boosting Innovation and Entrepreneurship Challenge Project

01/2020 – 12/2020

FUNDED BY EIT URBAN MOBILITY KIC

Activity Partner Principal Investigator

Editorial and organisational activities

COMMITTEE MEMBERSHIPS

- Member of the Standing Committee on Vehicle-Highway Automation (ACP30) for the Transportation Research Board (TRB) (2022 - current)
- Member of the Technical Committee for the IFAC 7.4: Transportation systems (2017 - current)
- Member of the Technical Committee for the IEEE Emerging Transportation Technology Testing (ET3) (2023 - current)
- Representative of the university members in the Governing Board for the European Partnership on Connected, Cooperative & Automated Mobility - CCAM Association (2024 - current)
- Partner Representative of the General Assembly for the European Partnership on Connected, Cooperative & Automated Mobility - CCAM Association (2021 - 2024)
- Vice-chair of the Programme Committee for the Transport Research Arena (TRA2020)
- Member of the Scientific Committee for the Symposia on Management of Future motorway and urban Traffic Systems (MFTS 2016 - 2024)

- Member of the Technical Program Committee for the IFAC Symposia on Control in Transportation Systems (CTS 2018 - 2024)
- Member of the Technical Program Committee for the IEEE International Conference on Intelligent Transportation Systems (ITSC 2017, 2020 - 2023)
- Member of the Scientific Committee and Permanent Representative for Aalto University for the European Association for Research in Transportation (hEART 2015 - 2024)
- Member of the Scientific Committee for the IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2021 - 2023)
- Member of the Scientific Committee for the EURO Working Group on Transportation Meetings (EWGT 2016, 2020)
- Member of the International Program Committee for the IEEE Intelligent Vehicles Symposia (IV 2018 - 2022)
- Member of the International Program Committee for the International Conferences on Vehicle Technology and Intelligent Transport Systems (VEHITS 2015 - 2019)
- Member of the Technical Program Committee for the International Conferences on Advances in Vehicular Systems, Technologies and Applications (VEHICULAR 2017 - 2019)
- Member of the Technical Program Committee for the IEEE International Conference on System of Systems (SoSE 2012)

EDITOR FOR INTERNATIONAL JOURNALS AND CONFERENCES

- Editorial Advisory Board Member for Transportation Research Part C: Emerging Technologies
- Associate Editor for IEEE Transactions on Intelligent Transportation Systems
- Special Issues Editor (Deputy Editor-in-Chief) for IET Intelligent Transport Systems
- Associate Editor for IET Intelligent Transport Systems
- Editor for Proceedings of the Institution of Civil Engineers - Transport
- Review Process Coordinator for TRB Committee on Vehicle-Highway Automation (ACP30)
- Review Editor for Frontiers in Future Transportation
- Principal organiser and Guest Editor of the Special Issue on “Management of Future Motorway and Urban Traffic Systems” within Transportation Research Part C: Emerging Technologies
- Guest Editor of the Special Issue on “Modelling, Learning, and Control of Conventional, Cooperative and Automated Motorway and Urban Traffic Systems” within Transportation Research Part C: Emerging Technologies
- Guest Editor of the Special issue on “Sustainable Development of Intelligent Transportation System and Equipment” within Sustainable Horizons
- Guest Editor of the Special Issue on “Management of Future Motorway and Urban Traffic Systems” within IEEE Transactions on Intelligent Transportation Systems
- Guest Editor of the Special Issue on “Traffic Modelling and Control for Smart, Safe and Green Mobility” within IEEE Open Journal of Intelligent Transportation Systems
- Guest Editor of the Special Issue on “Partially Connected and Automated Traffic Operations in Road Transportation” within Journal of Advanced Transportation
- Guest Editor of the Special issue on “Rethinking transport – towards clean and inclusive mobility” within European Transport Research Review
- Guest Editor of the Special Issue on “Communication, Positioning, and Sensing Solutions for Autonomous Vehicles” within Sensors
- Associate Editor for the IEEE International Conferences on Intelligent Transportation Systems (ITSC)
- Associate Editor for the IFAC Symposia on Control in Transportation Systems (CTS)
- Associate Editor for the IEEE Intelligent Vehicles Symposia (IV)
- Associate Editor for the Forums on Integrated and Sustainable Transportation Systems (Forum ISTS)

EVENT ORGANISATION

- Principal organiser of the 12th Symposium of the European Association for Research in Transportation (hEART 2024)
- Principal organiser of the 1st Symposium on Management of Future motorway and urban Traffic Systems (MFTS 2016)
- Technical programme co-chair of the 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2023)
- Member of the Organising Committee for the Transport Research Arena 2020 (TRA2020)
- Co-organiser of the invited session on “Novel methods for modeling and control of mobility and traffic systems”

at the 23rd European Control Conference (ECC 2025)

- Organiser of the Breakout session on “Interactive Traffic Management for Highly Automated Vehicles: A Multidisciplinary Challenge” at the 2023 TRB Annual Automated Road Transportation Symposium (ARTS23)
- Co-organiser of the special session titled “Towards sustainable traffic via trajectory optimisation and control strategies for Connected and Automated vehicles” at the 25th IEEE International Conferences on Intelligent Transportation Systems (ITSC 2022)
- Organiser of the Breakout session on “Interactive Traffic Management for Highly Automated Vehicles” at the 2022 TRB Annual Automated Road Transportation Symposium (ARTS22)
- Organiser and moderator of the invited session on “Intelligent Transport Systems” (Nordic Perspective Summit 2020)
- Organiser and Editor of the special Track on “Freeway Traffic Control” at the 15th IFAC Symposium on Control in Transportation Systems (CTS 2018)
- Co-organiser of the open invited track on “Traffic modeling, estimation and control” at the 20th World Congress of the International Federation of Automatic Control (IFAC 2017)
- Co-organiser of the special session on “Recent advances in motorway traffic control” at the 19th IEEE International Conferences on Intelligent Transportation Systems (ITSC 2016)
- Co-organiser of the invited session on “Management and control of motorway traffic systems” at the 14th IFAC Symposium on Control in Transportation Systems (CTS 2016)
- Co-organiser of the special session on “Advances in motorway traffic control” at the 18th IEEE International Conferences on Intelligent Transportation Systems (ITSC 2015)
- Co-organiser of the special session on “Design, modelling, and control of autonomous and cooperative vehicle systems” at the 18th Euro Working Group on Transportation Meeting (EWGT 2015)
- Co-organiser of the invited session on “Optimal control of motorways” at the 20th Conference of the International Federation of Operational Research Societies (IFORS 2014)

REVIEWER FOR INTERNATIONAL JOURNALS

- Transportation Research Part C: Emerging Technologies
- IEEE Transactions on Intelligent Transportation Systems
- Transportation Research Part B: Methodological
- Transportation Research Part A: Policy and Practice
- Transportation Science
- Transportation Research Record
- IET Intelligent Transport Systems
- Automatica
- IEEE Transactions on Control Systems Technology
- Control Engineering Practice
- Annual Reviews in Control
- IEEE Intelligent Transportation Systems Magazine
- IEEE Control Systems Magazine
- International Journal of Robust and Nonlinear Control
- IEEE Systems Journal
- IEEE Control Systems Letters
- Journal of Advanced Transportation
- Transportmetrica A: Transport Science
- Transportmetrica B: Transport Dynamics
- Transport Policy
- Transportation Letters: The International Journal of Transportation Research
- Journal of Traffic and Transportation Engineering
- EURO Journal on Transportation and Logistics
- Mathematical and Computer Modelling of Dynamical Systems
- Journal of Intelligent Transportation Systems: Technology, Planning, and Operations
- PROMET – Traffic & Transportation
- European Journal of Transport and Infrastructure Research
- International Journal of Sustainable Transportation
- Physica A

- Advances in Mechanical Engineering

REVIEWER FOR INTERNATIONAL CONFERENCES

- IEEE International Conferences on Intelligent Transportation Systems (ITSC)
- IEEE Intelligent Vehicles Symposia (IV)
- IEEE Conferences on Decision and Control (CDC)
- European Control Conferences (ECC)
- IFAC World Congresses (WS)
- IFAC Symposia on Control in Transportation Systems (CTS)
- Transportation Research Board (TRB) Annual Meetings
- Symposia of the European Association for Research in Transportation (hEART)
- EURO Working Group on Transportation Meetings (EWGT)
- International Symposia on Transportation and Traffic Theory (ISTTT)
- international Conferences on Traffic and Granular Flow (TGF)
- International Conferences on Vehicle Technology and Intelligent Transport Systems (VEHITS)
- European Conference on Information Systems (ECIS)
- IEEE International Conferences on System of Systems (SoSE)
- International Conferences on System Theory, Control and Computing (ICSTCC)

Supervision activities

AT AALTO UNIVERSITY

Dr. Iisakki Kosonen, Senior researcher AALTO UNIVERSITY, FINLAND	04/2019 – current
Dr. Murat Bayrak, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	08/2023 – current
Dr. Shaghayegh Vosough, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	03/2021 – current
Dr. Charalampos Sipetas, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	01/2021 – current
Ms. Liva Westerback, PhD student AALTO UNIVERSITY, FINLAND	11/2023 – current
Ms. Heqi Wang, PhD student AALTO UNIVERSITY, FINLAND	03/2023 – current
Mr. Yuanxiang Yang, PhD student AALTO UNIVERSITY, FINLAND	10/2022 – current
Mr. Muhammad Haris, PhD student AALTO UNIVERSITY, FINLAND	09/2022 – current
Mr. Francesco Vitale, PhD student AALTO UNIVERSITY, FINLAND	01/2020 – current
Ms. Elina Aittoniemi, Part-time PhD student AALTO UNIVERSITY, FINLAND - ALSO AT VTT TECHNICAL RESEARCH CENTRE OF FINLAND	11/2018 – current
Mr. Serio Agriesti, PhD student AALTO UNIVERSITY, FINLAND	03/2020 – 10/2024
Mr. Ze Zhou, PhD student AALTO UNIVERSITY, FINLAND	04/2019 – 10/2024
Mr. Roozbeh Mohammadi, PhD student AALTO UNIVERSITY, FINLAND	02/2018 – 08/2023

Mr. Farzam Tajdari, Part-time PhD student AALTO UNIVERSITY, FINLAND	10/2017 – 01/2023
Dr. Ramin Niroumand, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	08/2023 – 08/2024
Dr. Weiming Zhao, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	11/2019 – 09/2022
Dr. Cafer Avci, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	06/2019 – 06/2022
Dr. Yu Han, Postdoctoral researcher AALTO UNIVERSITY, FINLAND	09/2017 – 10/2017
Mr. Jingfeng Ma, PhD student SOUTHEAST UNIVERSITY, CHINA	12/2022 – 12/2023
Ms. Haizhen Li, PhD student CHANG'AN UNIVERSITY, CHINA	03/2021 – 03/2022
Mr. Mohammad Karimi, PhD student CONCORDIA UNIVERSITY, CANADA - WITH PROF. CIPRIAN ALECSANDRU	08/2017 – 06/2020
Ms. Oxana Ivanova, MSc student AALTO UNIVERSITY, FINLAND	11/2024 – current
Mr. Héctor Del Pino Verona, MSc student AALTO UNIVERSITY, FINLAND - ALSO AT UNIVERSITAT POLITÈCNICA DE VALÈNCIA, SPAIN	09/2019 – 01/2020
Mr. Germán R. Pardo González, Summer intern AALTO UNIVERSITY, FINLAND - ALSO AT LONDON SCHOOL OF ECONOMICS, UK	06/2024 – 08/2024
Ms. Olena Vol, Summer intern AALTO UNIVERSITY, FINLAND - ALSO AT UNIVERSITÉ PARIS 1 PANTHÉON-SORBONNE, FRANCE	06/2022 – 08/2022
Mr. Petr Anashin, Summer intern AALTO UNIVERSITY, FINLAND - ALSO AT UNIVERSITY OF TARTU, ESTONIA	06/2022 – 08/2022
Mr. Petr Hajduk, MSc student AALTO UNIVERSITY, FINLAND - ALSO AT VTT TECHNICAL RESEARCH CENTRE OF FINLAND AT TECHNICAL UNIVERSITY OF CRETE	01/2018 – 12/2018
Ms. Maria Kontorinaki, PhD student TECHNICAL UNIVERSITY OF CRETE, GREECE - WITH PROF. MARKOS PAPAGEORGIOU	09/2017 – 09/2017
Ms. Georgia R. Iordanidou, PhD student TECHNICAL UNIVERSITY OF CRETE, GREECE - WITH PROF. IOANNIS PAPAMICHAIL	06/2013 – 03/2017
Ms. Sofia Papadopoulou, MSc student TECHNICAL UNIVERSITY OF CRETE, GREECE - WITH PROF. MARKOS PAPAGEORGIOU	01/2016 – 03/2017
Ms. Georgia Perraki, MSc student TECHNICAL UNIVERSITY OF CRETE, GREECE - WITH PROF. IOANNIS PAPAMICHAIL	03/2015 – 11/2016
Mr. Markos Fountoulakis, MSc student TECHNICAL UNIVERSITY OF CRETE, GREECE - WITH PROF. MARKOS PAPAGEORGIOU	03/2015 – 07/2016
Ms. Cecilia Pasquale, PhD student UNIVERSITY OF GENOVA, ITALY - WITH PROF. SIMONA SACONE AT UNIVERSITY OF GENOVA	05/2014 – 07/2014
Mr. Haitam Laarabi, PhD student UNIVERSITY OF GENOVA, ITALY - WITH PROF. ROBERTO SACILE	07/2012 – 04/2013

Invited presentations

Network-wide motorway traffic control in presence of Vehicle Automation and Communication Systems UNIVERSITY OF CALIFORNIA LOS ANGELES, USA IPAM Workshop on Traffic Control, Part of the long program “New directions in mathematical approaches for traffic flow management”	26/10/2015
Traffic management in the era of Vehicle Automation and Communications Systems and Smart Infrastructure UNIVERSITY OF GLASGOW, UK Invited lecture	09/12/2015
Multilane traffic control in the presence of automated and connected vehicles UNIVERSITY OF LUXEMBOURG, LUXEMBOURG Workshop on Smart Mobility	01/06/2017
Integrated control of motorway bottlenecks via flow metering and lane assignment TECHNICAL UNIVERSITY OF CRETE, GREECE Invited seminar	12/09/2018
Traffic management for CAVs: Influence on traffic characteristics and control strategies BEIJING UNIVERSITY OF TECHNOLOGY, CHINA Invited seminar	28/05/2019
User-based signal timing in a connected vehicle environment ZHEJIANG UNIVERSITY, CHINA Invited seminar	31/05/2019
Feedback-based integrated lane-based control with Connected and Automated Vehicles UNIVERSITY OF CANTERBURY, NEW ZEALAND Invited seminar	06/11/2019
Data-driven traffic flow estimation at intersections in a partially connected environment IEEE INTELLIGENT TRANSPORTATION SYSTEM CONFERENCE 2020, GREECE Workshop on Traffic Management for Future Mobility: CAVs in a Mixed Traffic Environment	20/09/2020
Traffic Management in the era of Connectivity and Automation TU DRESDEN, GERMANY Invited lecture	08/10/2020
Online set-point estimation for motorway traffic control with connected and automated vehicles UNIVERSITY OF CYPRUS, CYPRUS Invited seminar	26/10/2022
Integration of large-scale activity-based and traffic assignment models: Calibration and equilibrium QUEENSLAND UNIVERSITY OF TECHNOLOGY, AUSTRALIA Invited seminar	18/10/2023
Connected and Automated Driving: Obstacle avoidance and cooperative decentralised routing UNIVERSITY OF QUEENSLAND, AUSTRALIA Invited seminar	23/10/2023
Connected and Automated Driving: Decentralised signal-free intersection management and cooperative routing UNIVERSITY OF SYDNEY, AUSTRALIA Invited seminar	03/11/2023

Dynamic ridesharing: Considering traffic congestion effects and fair pricing in matching and routing

13/11/2023

UNIVERSITY OF NEW SOUTH WALES, AUSTRALIA

Invited seminar

Matching and routing in Dynamic Ridesharing: Addressing traffic congestion and fair pricing

21/03/2024

TU DELFT, THE NETHERLANDS

Invited webinar

Invited external examiner

PhD degree examination

11/2024

UNIVERSITY OF TARTU, ESTONIA

PhD degree examination

05/2024

TECHNION – ISRAEL INSTITUTE OF TECHNOLOGY, ISRAEL

PhD degree examination

05/2024

TRINITY COLLEGE DUBLIN, IRELAND

PhD degree examination

12/2022

TECHNICAL UNIVERSITY OF CRETE, GREECE

PhD entry examination

12/2020

SWISS FEDERAL INSTITUTE OF TECHNOLOGY IN ZURICH (ETH), SWITZERLAND

PhD degree examination

07/2019

TECHNICAL UNIVERSITY OF CRETE, GREECE

PhD degree examination

09/2017

TECHNICAL UNIVERSITY OF CRETE, GREECE

PhD degree examination

03/2017

TECHNICAL UNIVERSITY OF CRETE, GREECE

2 MSc degree theses

02/2017

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL), SWITZERLAND

Research evaluation

- Evaluator of research proposals for California METRANS Transportation Center
- Evaluator of research proposals for the Netherlands Organisation for Scientific Research (NWO), domain Applied and Engineering Sciences
- Evaluator of research proposals for the Luxembourg national research fund (FNR)
- Evaluator of research proposals for the Research Grants Council (RGC) of Hong Kong
- Evaluator of research proposals for the Swiss National Science Foundation (SNSF)
- Evaluator of grant proposals for the National Science Center (NCN) of Poland
- External Expert in the evaluation of COST Action proposals, for the European Commission

Recognitions and awards

- The paper by Roncoli, C., Papageorgiou, M., Papamichail, M., titled “Traffic flow optimisation in presence of vehicle automation and communication systems - Part II: Optimal control for multi-lane motorways”, was listed among the “Most Cited Transportation Research Part C: Emerging Technologies Articles” during 2015-2018.
- The paper by Spiliopoulou, A., Perraki, G., Papageorgiou, M., Roncoli, C., titled “Exploitation of ACC systems towards improved traffic flow efficiency on motorways”, which was presented by A. Spiliopoulou at the 5th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2017), Naples, Italy, June 26-28, 2017, received the “Best Paper Presented by a Woman award”.

- The paper by Bekiaris-Liberis, N., Roncoli, C., Papageorgiou, M., titled “Highway Traffic State Estimation With Mixed Connected and Conventional Vehicles”, received the 2019 “George N. Saridis Best Transactions Paper Award” for Outstanding Research.
- The paper by Zhou, Z., Roncoli, C., titled “A fairness-aware joint pricing and matching framework for dynamic ridesharing”, which was presented by Z. Zhou at the 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2023), Nice, France, June 14-16, 2023, received the “Best Paper award”.

Personal information

- Nationality: Italian
- Date of birth: 30/10/1984
- Languages: Italian (mother tongue), English (fluently), French (basic), Greek (basic)

ARTICLES IN INTERNATIONAL JOURNALS

1. Roncoli, C., Bersani, C., and Sacile, R. A risk-based system of systems approach to control the transport flows of dangerous goods by road. *IEEE Systems Journal*, 7(4):561–570, 2013. DOI: 10.1109/JSYST.2012.2212652.
2. Iordanidou, G.-R., Roncoli, C., Papamichail, I., and Papageorgiou, M. Feedback-based mainstream traffic flow control for multiple bottlenecks on motorways. *IEEE Transactions on Intelligent Transportation Systems*, 16(2):1–12, 2014. DOI: 10.1109/TITS.2014.2331985.
3. Pasquale, C., Papamichail, I., Roncoli, C., Sacone, S., Siri, S., and Papageorgiou, M. Two-class freeway traffic regulation to reduce congestion and emissions via nonlinear optimal control. *Transportation Research Part C: Emerging Technologies*, 55(1):85–99, 2015. DOI: 10.1016/j.trc.2015.01.013.
4. Roncoli, C., Papageorgiou, M., and Papamichail, I. Traffic flow optimisation in presence of vehicle automation and communication systems – Part I: A first-order multi-lane model for motorway traffic. *Transportation Research Part C: Emerging Technologies*, 57:241–259, 2015. DOI: 10.1016/j.trc.2015.06.014.
5. Roncoli, C., Papageorgiou, M., and Papamichail, I. Traffic flow optimisation in presence of vehicle automation and communication systems – Part II: Optimal control for multi-lane motorways. *Transportation Research Part C: Emerging Technologies*, 57:260–275, 2015. DOI: 10.1016/j.trc.2015.05.011.
6. Roncoli, C., Papamichail, I., and Papageorgiou, M. Hierarchical model predictive control for multi-lane motorways in presence of Vehicle Automation and Communication Systems. *Transportation Research Part C: Emerging Technologies*, 62:117–132, 2016. DOI: 10.1016/j.trc.2015.11.008.
7. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Highway traffic state estimation with mixed connected and conventional vehicles. *IEEE Transactions on Intelligent Transportation Systems*, 17(12):3484–3497, 2016. DOI: 10.1109/TITS.2016.2552639.
8. Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Use of speed measurements for highway traffic state estimation: Case studies on NGSIM data and highway A20, Netherlands. *Transportation Research Record: Journal of the Transportation Research Board*, 2559(1):90–100, 2016. DOI: 10.3141/2559-11.
9. Han, Y., Hegyi, A., Yuan, Y., Hoogendoorn, S., Papageorgiou, M., and Roncoli, C. Resolving freeway jam waves by discrete first-order model-based predictive control of variable speed limits. *Transportation Research Part C: Emerging Technologies*, 77:405–420, 2017. DOI: 10.1016/j.trc.2017.02.009.
10. Fountoulakis, M., Bekiaris-Liberis, N., Roncoli, C., Papamichail, I., and Papageorgiou, M. Highway traffic state estimation with mixed connected and conventional vehicles: Microscopic simulation-based testing. *Transportation Research Part C: Emerging Technologies*, 78:13–33, 2017. DOI: 10.1016/j.trc.2017.02.015.
11. Roncoli, C., Bekiaris-liberis, N., and Papageorgiou, M. Lane-changing feedback control for efficient lane assignment at motorway bottlenecks. *Transportation Research Record: Journal of the Transportation Research Board*, 2625:20–31, 2017. DOI: 10.3141/2625-03.
12. Iordanidou, G.-R., Papamichail, I., Roncoli, C., and Papageorgiou, M. Feedback-based integrated motorway traffic flow control with delay balancing. *IEEE Transactions on Intelligent Transportation Systems*, 18(9): 2319–2329, 2017. DOI: 10.1109/TITS.2016.2636302.
13. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Highway traffic state estimation per lane in the presence of connected vehicles. *Transportation Research Part B: Methodological*, 106:1–28, 2017. DOI: 10.1016/j.trb.2017.11.001.
14. Kontorinaki, M., Spiliopoulou, A., Roncoli, C., and Papageorgiou, M. First-order traffic flow models incorporating capacity drop: Overview and real-data validation. *Transportation Research Part B: Methodological*, 106: 52–75, 2017. DOI: 10.1016/j.trb.2017.10.014.
15. Papadopoulou, S., Roncoli, C., Bekiaris-Liberis, N., Papamichail, I., and Papageorgiou, M. Microscopic simulation-based validation of a per-lane traffic state estimation scheme for highways with

- connected vehicles. *Transportation Research Part C: Emerging Technologies*, 86:441–452, 2018. DOI: 10.1016/j.trc.2017.11.012.
16. Perraki, G., Roncoli, C., Papamichail, I., and Papageorgiou, M. Evaluation of a model predictive control framework for motorway traffic involving conventional and automated vehicles. *Transportation Research Part C: Emerging Technologies*, 92:456–471, 2018. DOI: 10.1016/j.trc.2018.05.002.
 17. Roncoli, C., Bekiaris-Liberis, N., Carlson, R. C., and Geroliminis, N. Special issue on “Management of Future Motorway and Urban Traffic Systems”. *Transportation Research Part C: Emerging Technologies*, 96:1–2, 2018. DOI: 10.1016/j.trc.2018.09.005.
 18. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Predictor-Based Adaptive Cruise Control Design. *IEEE Transactions on Intelligent Transportation Systems*, 19(10):3181–3195, 2018. DOI: 10.1109/TITS.2017.2771501.
 19. Han, Y., Hegyi, A., Yuan, Y., Roncoli, C., and Hoogendoorn, S. An extended Linear Quadratic Model Predictive Control approach for multi-destination urban traffic networks. *IEEE Transactions on Intelligent Transportation Systems*, 20(10):3647–3660, 2019. DOI: 10.1109/TITS.2018.2877259.
 20. Bersani, C., Dagdougui, H., Roncoli, C., and Sacile, R. Distributed product flow control in a network of inventories with stochastic production and demand. *IEEE Access*, 7:22486–22494, 2019. DOI: 10.1109/ACCESS.2019.2898648.
 21. Papamichail, I., Bekiaris-Liberis, N., Delis, A. I., Manolis, D., Mountakis, K.-S., Nikolos, I. K., Roncoli, C., and Papageorgiou, M. Motorway traffic flow modelling, estimation and control with vehicle automation and communication systems. *Annual Reviews in Control*, 48:325–346, 2019. DOI: 10.1016/j.arcontrol.2019.09.002.
 22. Kamal, M. A. S., Ramezani, M., Wu, G., Roncoli, C., Rios-Torres, J., and Orfila, O. Partially Connected and Automated Traffic Operations in Road Transportation. *Journal of Advanced Transportation*, 1–3, 2020. DOI: 10.1155/2020/9490586.
 23. Bagheri, M., Mladenovic, M. N., Kosonen, I., Nurminen, J. K., Roncoli, C., and Ylä-Jääski, A. A computational framework for revealing competitive travel times with low-carbon modes based on smartphone data collection. *Journal of Advanced Transportation*, 2020:1–20, 2020. ISSN 0197-6729. DOI: 10.1155/2020/4693750.
 24. Ciuffo, B., Roncoli, C., and Viti, F. Guest Editorial Introduction of the Special Issue on Management of Future Motorway and Urban Traffic Systems. *IEEE Transactions on Intelligent Transportation Systems*, 21(4): 1631–1634, 2020. DOI: 10.1109/TITS.2020.2980068.
 25. Mladenović, M. N., Leviäkangas, P., Roncoli, C., and Hänninen, S. Rethinking transport – towards clean and inclusive mobility (Highlights of the 2020 Transport Research Arena conference). *European Transport Research Review*, 12(1), 2020. DOI: 10.1186/s12544-020-00434-6.
 26. Karimi, M., Roncoli, C., Alecsandru, C., and Papageorgiou, M. Cooperative merging control via trajectory optimization in mixed vehicular traffic. *Transportation Research Part C: Emerging Technologies*, 116:102663, 2020. DOI: 10.1016/j.trc.2020.102663.
 27. Tajdari, F., Roncoli, C., and Papageorgiou, M. Feedback-based ramp metering and lane-changing control with connected and automated vehicles. *IEEE Transactions on Intelligent Transportation Systems*, 23(2), 2020. DOI: 10.1109/TITS.2020.3018873.
 28. Mohammadi, R., Roncoli, C., and Mladenovic, M. Signalised intersection control in a connected vehicle environment: User throughput maximisation strategy. *IET Intelligent Transport Systems*, 15(3):463–482, 2021. DOI: 10.1049/itr2.12038.
 29. Zhao, M., Roncoli, C., Wang, Y., Bekiaris-Liberis, N., Guo, J., and Cheng, S. Generic approaches to estimating freeway traffic state and percentage of connected vehicles with fixed and mobile sensing. *IEEE Transactions on Intelligent Transportation Systems*, 23(8), 2021. DOI: 10.1109/TITS.2021.3121181.
 30. Mohammadi, R. and Roncoli, C. Towards data-driven vehicle estimation for signalised intersections in a partially connected environment. *Sensors*, 21(24), 2021. DOI: 10.3390/s21248477.

31. Han, Y., Wang, M., Li, L., Gao, J., Roncoli, C., and Liu, P. A physics-informed reinforcement learning-based strategy for local and coordinated ramp metering. *Transportation Research Part C: Emerging Technologies*, 137:103584, 2022. DOI: 10.1016/j.trc.2022.103584.
32. Agriesti, S. A. M., Roncoli, C., and Nahmias-Biran, B.-H. Assignment of synthetic population for activity-based modelling employing publicly available data. *ISPRS International Journal of Geo-Information*, 11(2):148, 2022. DOI: 10.3390/ijgi11020148.
33. Zhou, Z. and Roncoli, C. A scalable vehicle assignment and routing strategy for real-time on-demand ridesharing considering endogenous congestion. *Transportation Research Part C: Emerging Technologies*, 139:103658, 2022. DOI: 10.1016/j.trc.2022.103658.
34. Hu, S., Zhou, Q., Li, J., Wang, Y., Roncoli, C., Zhang, L., and Lehe, L. High time-resolution queue profile estimation at signalized intersections based on Extended Kalman Filtering. *IEEE Transactions on Intelligent Transportation Systems*, 23(11):21274–21290, 2022. DOI: 10.1109/TITS.2022.3173515.
35. Roncoli, C., Chandakas, E., and Kaparias, I. Estimating on-board passenger comfort in public transport vehicles using incomplete Automatic Passenger Counting data. *Transportation Research Part C: Emerging Technologies*, 146:103963, 2023. DOI: 10.1016/j.trc.2022.103963.
36. Sipetas, C., Roncoli, C., and Mladenović, M. Mixed fleets of automated and human-driven vehicles in public transport systems: An evaluation of feeder line services. *Transportation Research Interdisciplinary Perspectives*, 18:100791, 2023. DOI: 10.1016/j.trip.2023.100791.
37. Tajdari, F. and Roncoli, C. Online set-point estimation for feedback-based traffic control applications. *IEEE Transactions on Intelligent Transportation Systems*, 24(10):10830–10842, 2023. DOI: 10.1109/TITS.2023.3274233.
38. Zhao, W. and Roncoli, C. A constrained spectral clustering method for lane identification using trajectory data. *Transportation Research Part C: Emerging Technologies*, 155:104270, 2023. DOI: 10.1016/j.trc.2023.104270.
39. Zhou, Q., Zhou, B., Hu, S., , Roncoli, C., Wang, Y., Hu, J., and Lu, G. A safety-enhanced eco-driving strategy for connected and autonomous vehicles: A hierarchical and distributed framework. *Transportation Research Part C: Emerging Technologies*, 156:104320, 2023. DOI: 10.1016/j.trc.2023.104320.
40. Vitale, F. and Roncoli, C. Reference tracking optimization with obstacle avoidance via task prioritization for automated driving. *IEEE Transactions on Intelligent Transportation Systems*, 25(2):1200–1214, 2023. DOI: 10.1109/TITS.2023.3312999.
41. Zhou, Z., Roncoli, C., and Sipetas, C. Optimal matching for coexisting ride-hailing and ridesharing services considering pricing fairness and user choices. *Transportation Research Part C: Emerging Technologies*, 156:104326, 2023. DOI: 10.1016/j.trc.2023.104326.
42. Agriesti, S. A. M., Kuzmanovski, V., Hollmén, J., Roncoli, C., and Nahmias-Biran, B.-h. A Bayesian Optimization approach for calibrating large-scale activity-based transport models. *IEEE Open Journal of Intelligent Transportation Systems*, 4:740–754, 2023. DOI: 10.1109/OJITS.2023.3321110.
43. Vosough, S. and Roncoli, C. Achieving social routing via navigation apps: User acceptance of travel time sacrifice. *Transport Policy*, 148:246–256, 2024. DOI: 10.1016/j.tranpol.2024.01.026.
44. Li, H., Roncoli, C., and Ju, Y. A Helly model-based MPC control system for jam-absorption driving strategy against traffic waves in mixed traffic. *Applied Sciences: Transportation and Future Mobility*, 14(4):1424, 2024. DOI: 10.3390/app14041424.
45. Espinosa Mireles de Villafranca, A. and Roncoli, C. Network traffic management via exclusive roads for altruistic vehicles under mixed traffic equilibrium. *Transportation Research Interdisciplinary Perspectives*, 25:101042, 2024. DOI: 10.1016/j.trip.2024.101042.
46. Li, H., Roncoli, C., Zhao, W., and Ju, Y. Assessing the impact of CAV driving strategies on mixed traffic on the ringroad and freeway. *Sustainability*, 16(8), 2024. DOI: 10.3390/su16083179.

47. Zhu, B., Hu, S., Chen, X. M., Roncoli, C., and Lee, D.-H. Uncovering driving factors and spatiotemporal patterns of urban passenger car CO2 emissions: A case study in Hangzhou, China. *Applied Energy*, 375:124094, 2024. DOI: 10.1016/j.apenergy.2024.124094.
48. Tarkkala, K., Vosough, S., West, J., and Roncoli, C. Evaluating the influence of cyclists' route Choices incorporation into travel demand modelling: A case study in Greater Helsinki. *Transportation Research Interdisciplinary Perspectives*, 27:101224, 2024. DOI: 10.1016/j.trip.2024.101224.
49. Khavarian, K., Vosough, S., and Roncoli, C. Bike users' route choice behaviour: Expectations from electric bikes versus reality in Greater Helsinki. *Journal of Cycling and Micromobility Research*, 2:100045, 2024. DOI: 10.1016/j.jcmr.2024.100045.
50. Mohammadi, R., Vosough, S., and Roncoli, C. Analysing the environmental and social impacts of a novel user-based transit signal priority strategy in a connected vehicle environment. *Journal of Advanced Transportation*, 2024(1):8712813, 2024. DOI: 10.1155/2024/8712813.
51. Liaquat, M., Vosough, S., Roncoli, C., and Charalambous, T. Assessing the performance of a hybrid max-weight traffic signal control algorithm in the presence of noisy queue information – An evaluation of the environmental impacts. *IET Intelligent Transport Systems*, 18(11):2255–2272, 2024. DOI: 10.1049/itr2.12571.
52. Fun, P. L., Al-Jaghbeer, O., Chen, J., Paunu, V.-V., Vosough, S., Roncoli, C., and Järvi, L. A geospatial approach for dynamic on-road emission through open-access floating car data. *Environmental Research Letters*, 20: 014033, 2025. DOI: 10.1088/1748-9326/ad984d.
53. Ma, J., Roncoli, C., Ren, G., Yang, Y., Cao, Q., Deng, Y., and Li, J. Vehicle trajectory reconstruction from sparse data using a hybrid approach. *Journal of Transportation Engineering, Part A: Systems*, 151(2):04024108, 2025. DOI: 10.1061/JTEPBS.TEENG-8569.
54. Vitale, F. and Roncoli, C. Cooperative traffic dispersion through rerouting of connected and automated vehicles in urban networks. *Transportation Research Record: Journal of the Transportation Research Board*, 2024. DOI: 10.1177/03611981241248648.
55. Agriesti, S. A. M., Roncoli, C., and Nahmias-Biran, B.-h. A simulation-based framework for quantifying potential demand loss due to operational constraints in automated mobility services. *Transportation Research Part A: Policy and Practice*, Accepted.
56. Vosough, S., Vol, O., and Roncoli, C. Drivers' compliance behaviour under social routing recommendations: Why do drivers deviate from their stated intentions? Submitted.
57. Bochenina, K., Agriesti, S., Roncoli, C., and Ruotsalainen, L. From urban data to city-scale models: A review of traffic simulation case studies. Submitted.
58. Hu, S., Zhou, B., Hu, J., Roncoli, C., and Escibano, J. A methodological framework for automated extraction and analysis of traffic parameters from high-resolution UAV video data. Submitted.
59. Ma, J., Roncoli, C., Rena, G., Yang, Y., Cao, Q., and Deng, Y. An integrated framework for fully-sampled vehicle trajectory reconstruction using a fused dataset. Submitted.
60. Zhou, Z., Agriesti, S., Roncoli, C., Yfantis, L., Nahmias-Biran, B.-h., and Casas, J. Optimal matching and fair pricing for large-scale ridesharing: Agent-based disaggregated assessment. Submitted.
61. Vitale, F., Niroumand, R., and Roncoli, C. Distributed signal-free intersection optimization via iterative time slots adjustment for connected and automated vehicles. Submitted.
62. Niroumand, R., Vosough, S., Roncoli, C., Rinaldi, M., and Connors, R. Mitigating network traffic congestion via link- and path-based incentives. Submitted.
63. Niroumand, R., Kafashan, F., Hajibabai, L., Hajbabaie, A., and Roncoli, C. A multi-trajectory construction heuristic to manage CAVs in signal-free intersections, Submitted.

ARTICLES IN CONFERENCE PROCEEDINGS

1. Roncoli, C., Bersani, C., Sacile, R., and Minciardi, R. Optimal traffic flow assignment for planned deliveries in dangerous good transportation. In *2011 IEEE International Systems Conference*, 292–297, 2011. DOI: 10.1109/SYSCON.2011.5929051.
2. Roncoli, C., Bersani, C., and Sacile, R. A decentralised control model for the risk-based management of dangerous good transport flows on road. In *2012 IEEE International Systems Conference SysCon 2012*, 1–5, 2012. DOI: 10.1109/SysCon.2012.6189522.
3. Benza, M., Bersani, C., D’Inca, M., Roncoli, C., Sacile, R., Trotta, A., Pizzorni, D., Briata, S., and Riboldi, R. Intelligent Transport Systems (ITS) applications on dangerous good transport on road in Italy. In *2012 7th International Conference on System of Systems Engineering (SoSE)*, 223–228, 2012. DOI: 10.1109/SYSoSE.2012.6384180.
4. Bersani, C. and Roncoli, C. Real-time risk definition in the transport of dangerous goods by road. In *2012 7th International Conference on System of Systems Engineering (SoSE)*, 131–136, 2012. DOI: 10.1109/SYSoSE.2012.6384192.
5. Roncoli, C., Sacile, R., and Bell, M. G. Operational and real-time team decision problems in the risk-averse transportation of dangerous goods by road. In *2012 7th International Conference on System of Systems Engineering (SoSE)*, 209–213, 2012. DOI: 10.1109/SYSoSE.2012.6384185.
6. Roncoli, C., Bersani, C., and Sacile, R. Distributed control of Dangerous Goods flows. In *Proceedings of the 9th International Conference on Informatics in Control, Automation and Robotics*, 325–328, 2012. DOI: 10.5220/0004042803250328.
7. Laarabi, M. H., Roncoli, C., Sacile, R., Boulmakoul, A., and Garbolino, E. An overview of a multiagent-based simulation system for dynamic management of risk related to Dangerous Goods Transport. In *2013 IEEE International Systems Conference (SysCon)*, 830–835, 2013. DOI: 10.1109/SysCon.2013.6549980.
8. Roncoli, C., Papageorgiou, M., and Papamichail, I. Optimal control for multi-lane motorways in presence of vehicle automation and communication systems. *IFAC Proceedings Volumes*, 47(3):4178–4183, 2014. DOI: 10.3182/20140824-6-ZA-1003.01657.
9. Iordanidou, G.-R., Papamichail, I., Roncoli, C., and Papageorgiou, M. A feedback-based approach for mainstream traffic flow control of multiple bottlenecks on motorways. *IFAC Proceedings Volumes*, 47(3): 11344–11349, 2014. DOI: 10.3182/20140824-6-ZA-1003.02174.
10. Roncoli, C., Papamichail, I., and Papageorgiou, M. Model predictive control for multi-lane motorways in presence of VACS. In *2014 17th IEEE International Conference on Intelligent Transportation Systems, ITSC*, 2014. DOI: 10.1109/ITSC.2014.6957739.
11. Roncoli, C., Papamichail, I., and Papageorgiou, M. Model predictive control for motorway traffic with mixed manual and VACS-equipped vehicles. *Transportation Research Procedia*, 10:452–461, 2015. DOI: 10.1016/j.trpro.2015.09.095.
12. Pasquale, C., Papamichail, I., Roncoli, C., Sacone, S., Siri, S., and Papageorgiou, M. A nonlinear optimal control approach for two-class freeway traffic regulation to reduce congestion and emissions. In *2015 European Control Conference (ECC)*, 2646–2651, 2015. DOI: 10.1109/ECC.2015.7330937.
13. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Highway traffic state estimation with mixed connected and conventional vehicles using speed measurements. In *2015 IEEE 18th International Conference on Intelligent Transportation Systems*, 2806–2811, 2015. DOI: 10.1109/ITSC.2015.451.
14. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Highway traffic state estimation with mixed connected and conventional vehicles. *IFAC-PapersOnLine*, 49(3):309–314, 2016. DOI: 10.1016/j.ifacol.2016.07.052.
15. Iordanidou, G.-R., Papamichail, I., Roncoli, C., and Papageorgiou, M. Integrated motorway traffic flow control with delay balancing. *IFAC-PapersOnLine*, 49(3), 2016. DOI: 10.1016/j.ifacol.2016.07.053.
16. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Predictor-based adaptive cruise control design. In *2016 IEEE Conference on Control Applications (CCA)*, 97–102, 2016. DOI: 10.1109/CCA.2016.7587828.

17. Fountoulakis, M., Bekiaris-Liberis, N., Roncoli, C., Papamichail, I., and Papageorgiou, M. Highway traffic state estimation with mixed connected and conventional vehicles: Microscopic simulation-based testing. In *2016 IEEE 19th International Conference on Intelligent Transportation Systems (ITSC)*, 1761–1766, 2016. DOI: 10.1109/ITSC.2016.7795796.
18. Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Optimal lane-changing control at motorway bottle-necks. In *2016 IEEE 19th International Conference on Intelligent Transportation Systems (ITSC)*, 1785–1791, 2016. DOI: 10.1109/ITSC.2016.7795800.
19. Spiliopoulou, A., Perraki, G., Papageorgiou, M., and Roncoli, C. Exploitation of ACC systems towards improved traffic flow efficiency on motorways. In *2017 5th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 37–43, 2017. DOI: 10.1109/MTITS.2017.8005706.
20. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Traffic state estimation per lane in highways with Connected Vehicles. *Transportation Research Procedia*, 27:921–928, 2017. DOI: 10.1016/j.trpro.2017.12.057.
21. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Structural observability of multi-lane traffic with connected vehicles. In *2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC)*, 1–8, 2017. DOI: 10.1109/ITSC.2017.8317634.
22. Papadopoulou, S., Roncoli, C., Bekiaris-Liberis, N., Papamichail, I., and Papageorgiou, M. Validation of a per-lane traffic state estimation scheme for highways with connected vehicles. In *2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC)*, 1–7, 2017. DOI: 10.1109/ITSC.2017.8317704.
23. Perraki, G., Roncoli, C., Papamichail, I., and Papageorgiou, M. Evaluation of an MPC strategy for motorway traffic comprising connected and automated vehicles. In *2017 IEEE 20th International Conference on Intelligent Transportation Systems (ITSC)*, 1–7, 2017. DOI: 10.1109/ITSC.2017.8317635.
24. Bekiaris-Liberis, N., Roncoli, C., and Papageorgiou, M. Predictor-based adaptive cruise control design with integral action. *IFAC-PapersOnLine*, 51(9):86–91, 2018. DOI: 10.1016/j.ifacol.2018.07.015.
25. Tajdari, F., Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Integrated ramp metering and lane-changing feedback control at motorway bottlenecks. In *2019 18th European Control Conference (ECC)*, 3179–3184, 2019. DOI: 10.23919/ECC.2019.8795763.
26. Mohammadi, R., Roncoli, C., and Mladenovic, M. N. User throughput optimization for signalized intersection in a connected vehicle environment. In *2019 6th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 2019. DOI: 10.1109/MTITS.2019.8883378.
27. Mladenovic, M. N., Abbas, M., Roncoli, C., and Chenani, S. B. A cooperative framework for Universal Basic Mobility System: Mobility credits approach. In *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*, 694–701, 2019. DOI: 10.1109/ITSC.2019.8916964.
28. Roncoli, C. Integrated optimal traffic flow control enabled by speed and time-gap regulation. In *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*, 3763–3769, 2019. DOI: 10.1109/ITSC.2019.8917432.
29. Boufous, O., Roncoli, C., and Charalambous, T. Centralized and distributed multi-region traffic flow control. In *2020 European Control Conference (ECC)*, 2020. DOI: 10.23919/ECC51009.2020.9143671.
30. Toivio, T., Kosonen, I., and Roncoli, C. A multilayer optimisation framework for policy-based traffic signal control. In *2020 Forum on Integrated and Sustainable Transportation Systems (Forum ISTS 2020)*, 2020. DOI: 10.1109/FISTS46898.2020.9264870.
31. Mohammadi, R., Roncoli, C., and Mladenovic, M. Transit signal priority in a connected vehicle environment: User throughput and schedule delay optimization approach. In *2020 Forum on Integrated and Sustainable Transportation Systems (Forum ISTS 2020)*, 2020. DOI: 10.1109/FISTS46898.2020.9264898.
32. Tajdari, F. and Roncoli, C. Adaptive traffic control at motorway bottlenecks with time-varying Fundamental Diagram. *IFAC-PapersOnLine*, 54(2):271–277, 2021. DOI: 10.1016/j.ifacol.2021.06.051.
33. Del Pino Verona, H., Mohammadi, R., and Roncoli, C. Assessment of connected vehicle information quality for signalised traffic control. In *7th International IEEE Conference on Models and Technologies for Intelligent*

Transportation Systems (MT-ITS 2021), 2021. DOI: 10.1109/MT-ITS49943.2021.9529324.

34. Zhou, Z. and Roncoli, C. Computationally efficient dynamic assignment for on-demand ridesharing in congested networks. In *7th International IEEE Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2021)*, 2021. DOI: 10.1109/MT-ITS49943.2021.9529283.
35. Zhou, Q., Mohammadi, R., Zhao, W., Zhang, K., Zhang, L., Wang, Y., Roncoli, C., and Hu, S. a. Queue profile identification at signalized intersections with high-resolution data from drones. In *7th International IEEE Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS 2021)*, 2021. DOI: 10.1109/MT-ITS49943.2021.9529337.
36. Vitale, F. and Roncoli, C. An MPC-based task priority management approach for connected and automated vehicles reference tracking with obstacle avoidance. In *2021 European Control Conference (ECC)*, 2021. DOI: 10.23919/ECC54610.2021.9654856.
37. Vitale, F. and Roncoli, C. Distributed formation control for managing CAV overtaking and intersection maneuvers. *IFAC-PapersOnLine*, 55(13):198–4203, 2022. DOI: 10.1016/j.ifacol.2022.07.259.
38. Sayrol, E., Roncoli, C., Bragós, R., Mohammadi, R., Aba, A., Banfi, M., Bloemer, A., Minner, S., Witlox, F., Pinhas, N., Shifan, Y., Macario, R., Marques da Costa, N., Ribas, I., and Estrada, M. I&E Project concept for Urban Mobility education. In *50th Annual Conference of The European Society for Engineering Education (SEFI 2022)*, 1573–1581, 2022. DOI: 10.5821/conference-9788412322262.1335.
39. Zhou, Z. and Roncoli, C. A fairness-aware joint pricing and matching framework for dynamic ridesharing. In *2023 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 2023. DOI: 10.1109/MT-ITS56129.2023.10241664.
40. Vol, O., Vosough, S., and Roncoli, C. Drivers' compliance with social route recommendations: Stated intentions vs actual behaviour. In *2023 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 2023. DOI: 10.1109/MT-ITS56129.2023.10241758.
41. Agriesti, S. A. M., Anashin, P., Roncoli, C., and Nahmias-Biran, B.-h. Integrating activity-based and traffic assignment models: Methodology and case study application. In *2023 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 2023. DOI: 10.1109/MT-ITS56129.2023.10241611.
42. Hu, J., Lian, S., Hu, S., Demartino, C., Wang, G., Li, Y., and Roncoli, C. A CNN-based generative models for vehicle trajectory reconstruction in mixed traffic flow. In *2023 8th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS)*, 2023. DOI: 10.1109/MT-ITS56129.2023.10241397.
43. Vitale, F. and Roncoli, C. Cooperative rerouting to redistribute the load of Connected and Automated Vehicles in urban networks. In *2023 IEEE 26th International Conference on Intelligent Transportation Systems (ITSC)*, 5567–5572, 2023. DOI: 10.1109/ITSC57777.2023.10422516.
44. Yang, Y., Liu, Y., and Roncoli, C. A macro-micro lane changing strategy for congestion mitigation in mixed traffic. In *2024 IEEE 27th International Conference on Intelligent Transportation Systems (ITSC)*, Accepted.
45. Haris, M. and Roncoli, C. Optimizing urban traffic networks with dynamic saturation rates in a mixed autonomy environment. Submitted.
46. Wang, H. and Roncoli, C. Multi-line short-term onboard passenger loading prediction via relational multi-graph convolutional-recurrent networks. Submitted.
47. Yung, C., Sipetas, C., and Roncoli, C. A machine learning framework for public transport ridership estimation using multi-source data fusion with low-cost bluetooth data. Submitted.

ARTICLES IN BOOK CHAPTERS

1. Benza, M., Bersani, C., D'Incà, M., Roncoli, C., and Sacile, R. Technical and functional standards to provide a high quality service for Dangerous Good Transport on road. In *NATO Science for Peace and Security Series C: Environmental Security*, volume 126, 75–94. Springer, Dordrecht, 2012. DOI: 10.1007/978-94-007-2684-0_3.

2. Roncoli, C., Papageorgiou, M., and Papamichail, I. Motorway traffic flow optimisation in presence of Vehicle Automation and Communication Systems. In *Computational Methods in Applied Sciences*, volume 38, 1–16. Springer, Cham, 2015. DOI: 10.1007/978-3-319-18320-6_1.
3. Papageorgiou, M., Diakaki, C., Nikolos, I., Ntousakis, I., Papamichail, I., and Roncoli, C. Freeway traffic management in presence of Vehicle Automation and Communication Systems (VACS). In *Road Vehicle Automation 2*, 205–214. Springer, Cham, 2015. DOI: 10.1007/978-3-319-19078-5_18.
4. Alkim, T., Roncoli, C., Geissler, T., Khastgir, S., and Kulmala, R. Interactive traffic management for highly automated vehicles. In *Road Vehicle Automation 10*, 174–182. Springer Nature Switzerland, Cham, 2023. DOI: 10.1007/978-3-031-34757-3_14.
5. Dadashzadeh, N., Agriesti, S., Sadid, H., Elvarsson, A. B., Roncoli, C., and Antoniou, C. Evaluating sustainability in simulations of automated and connected transport. In Thomopoulos, N., Attard, M., and Shiftan, Y., editors, *Sustainable Automated and Connected Transport*, volume 19 of *Transport and Sustainability*, 47–64. Emerald Publishing Limited, 2024. DOI: 10.1108/S2044-994120240000019003.

OTHER PEER-REVIEWED CONFERENCE PRESENTATIONS (WITHOUT PUBLISHED PROCEEDINGS)

1. Roncoli, C., Bell, M., Kanturska, U., and Haji Hosseinloo, S. Hypertours: Risk averse distribution of hazardous materials. In *Global Supply Chain Security conference (SCS 2011)*, 2011.
2. Roncoli, C., Papageorgiou, M., and Papamichail, I. Motorway flow optimisation in presence of Vehicle Automation and Communication Systems. In *1st International Conference on Engineering and Applied Science Optimization (OPT-i)*, 519–529, 2014.
3. Roncoli, C., Papageorgiou, M., and Papamichail, I. An optimisation-oriented first-order multi-lane model for motorway traffic. In *TRB 94th Annual Meeting*, 15–2905, 2015.
4. Kontorinaki, M., Spiliopoulou, A., Roncoli, C., and Papageorgiou, M. Capacity drop in first-order traffic flow models: Overview and real-data validation. In *TRB 95th Annual Meeting*, 16–3541, 2016.
5. Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Motorway traffic state estimation using speed measurements: Case studies on NGSIM data and motorway A20 in the Netherlands. In *TRB 95th Annual Meeting*, 16–2071, 2016.
6. Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Optimal lane-changing control at motorway bottlenecks. In *1st Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2016)*, 2016.
7. Iordanidou, G.-R., Papamichail, I., Roncoli, C., and Papageorgiou, M. Feedback-based integrated motorway traffic flow control. In *1st Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2016)*, 2016.
8. Roncoli, C., Bekiaris-Liberis, N., and Papageorgiou, M. Lane-changing feedback control for efficient lane assignment at motorway bottlenecks. In *TRB 96th Annual Meeting*, 17–04395, 2017.
9. Papamichail, I., Iordanidou, G., Roncoli, C., and Papageorgiou, M. Integrated motorway traffic flow control. In *8th International Congress on Transportation Research (ICTR 2017)*, 519–529, 2017.
10. Roncoli, C., Tajdari, F., Bekiaris-Liberis, N., and Papageorgiou, M. Optimal flow metering and lane-changing control at motorway bottlenecks. In *2nd Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2018)*, 2018.
11. Roncoli, C., Tajdari, F., Bekiaris-Liberis, N., and Papageorgiou, M. Integrated control of motorway bottlenecks via flow metering and lane assignment. In *hEART 2018: 7th Symposium of the European Association for Research in Transportation*, 2018.
12. Roncoli, C. Optimal traffic control via time-gap regulation. In *hEART 2019: 8th Symposium of the European Association for Research in Transportation*, 2019.
13. Karimi, M., Roncoli, C., Alecsandru, C., and Papageorgiou, M. Merging in mixed traffic of Connected and Automated Vehicles and conventional vehicles: A Model Predictive Control framework. In *TRB 99th Annual Meeting*, 20–03885, 2020.

14. Roncoli, C. Optimal traffic flow control via time-gap regulation. In *TRB 99th Annual Meeting*, 20–02759, 2020.
15. Hajduk, P., Roncoli, C., and Pihlatie, M. Data-based synthetic population generator for activity-based transport models. In *TRA2020 - The 8th Transport Research Arena*, 2020.
16. Mohammadi, R., Roncoli, C., and Mladenovic, M. N. Data-driven estimation of vehicles approaching an intersection in a partially connected environment. In *4th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2020)*, 2020.
17. Avci, C., Mattas, K., Albano, G., Roncoli, C., and Ciuffo, B. Dynamic programming-based trajectory optimisation for Connected Adaptive Cruise Control-equipped vehicles in mixed traffic. In *4th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2020)*, 2020.
18. Mohammadi, R., Roncoli, C., and Mladenovic, M. Maximizing user throughput at signalized intersections in a Connected Vehicle environment. In *TRB 100th Annual Meeting*, TRBAM–21–00439, 2021.
19. Sipetas, C., Roncoli, C., and Mladenović, M. Optimized Operation of Flexible Transit Services with Mixed Fleets of Automated and Human-Driven Vehicles. In *TRB 101st Annual Meeting*, TRBAM–22–00753, 2022.
20. Mohammadi, R. and Roncoli, C. Vehicle Estimation for Signalised Links in a Partially Connected Vehicle Environment: A Data-driven Approach. In *TRB 101st Annual Meeting*, TRBAM–22–00360, 2022.
21. Vitale, F. and Roncoli, C. Obstacle Avoidance via Nonlinear MPC for Automated Vehicles for Urban and Highway scenarios. In *TRB 101st Annual Meeting*, TRBAM–22–00374, 2022.
22. Zhou, Z. and Roncoli, C. A decentralized framework for dynamic ridesharing considering traffic congestion. In *TRB 101st Annual Meeting*, TRBAM–22–01969, 2022.
23. Zhou, Q., Li, J., Wang, Y., Roncoli, C., Zhang, L., Lehe, L., and Hu, S. High-resolution queue profile estimation at signalized intersections based on Extended Kalman Filter. In *TRB 101st Annual Meeting*, TRBAM–22–02414, 2022.
24. Zhao, W. and Roncoli, C. A constrained spectral clustering method for Lane identification using trajectory data. In *TRB 101st Annual Meeting*, TRBAM–22–03865, 2022.
25. Vosough, S. and Roncoli, C. Investigating drivers' behaviour and time sacrifice under social routing advices. In *hEART 2022: 10th Symposium of the European Association for Research in Transportation*, 2022.
26. Sipetas, C. and Roncoli, C. Strategic integration of flexible services of shared automated vehicles with conventional fixed public transit. In *hEART 2022: 10th Symposium of the European Association for Research in Transportation*, 2022.
27. Espinosa Mireles de Villafranca, A. and Roncoli, C. Performance of synthetic road networks with dedicated streets for altruists. In *hEART 2022: 10th Symposium of the European Association for Research in Transportation*, 2022.
28. Vitale, F. and Roncoli, C. Distributed ordering and optimization for intersection management with connected and automated vehicles. In *4th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2022)*, 2022.
29. Vosough, S. and Roncoli, C. Drivers' social routing behavior: Evidence from stated and revealed preferences experiments in two European cities. In *TRB 102nd Annual Meeting*, TRBAM–23–01538, 2023.
30. Agriesti, S. A. M., Kuzmanovski, V., Hollmén, J., Roncoli, C., and Nahmias-Biran, B.-h. Calibration of large scale behavioral transport models via Bayesian optimization. In *TRB 102nd Annual Meeting*, TRBAM–23–04904, 2023.
31. Mohammadi, R., Vosough, S., and Roncoli, C. User-based transit signal priority in a connected vehicle environment accounting for schedule delays and environmental impacts. In *TRB 102nd Annual Meeting*, TRBAM–23–03456, 2023.
32. Roncoli, C., Chandakas, E., and Kaparias, I. A Kalman filter based estimation method for on-board public transport passenger comfort using incomplete Automatic Passenger Counting data. In *TRB 102nd Annual*

Meeting, TRBAM-23-00082, 2023.

33. Agriesti, S. A. M., Anashin, P., Roncoli, C., and Nahmias-Biran, B.-h. On integrating large-scale activity-based and dynamic traffic assignment models. In *International Symposium on Transportation Data & Modelling (ISTDM2023)*, 2023.
34. Khavarian, K., Vosough, S., and Roncoli, C. How do electric bikes affect the route choice of cyclists? A case study of Greater Helsinki. In *hEART 2023: 11th Symposium of the European Association for Research in Transportation*, 2023.
35. Ma, J., Roncoli, C., Ren, G., Cao, Q., Deng, Y., and Du, J. Vehicle trajectory reconstruction based on Hidden Markov Model and Piecewise Cubic Hermite Interpolation Polynomial. In *TRB 103rd Annual Meeting*, TRBAM-24-04768, 2024.
36. Vitale, F. and Roncoli, C. Real-time congestion-aware distributed cooperative rerouting of connected and automated vehicles in urban networks. In *TRB 103rd Annual Meeting*, TRBAM-24-03484, 2024.
37. Tarkkala, K., Vosough, S., West, J., and Roncoli, C. Incorporating cyclists' route choice models into travel demand modelling: A case study in Greater Helsinki. In *TRB 103rd Annual Meeting*, TRBAM-24-00368, 2024.
38. Zhou, Z., Roncoli, C., and Sipetas, C. Joint optimisation of pricing and matching for mobility-on-demand ridesharing systems considering fairness and user choices. In *TRB 103rd Annual Meeting*, TRBAM-24-00375, 2024.
39. Khavarian, K., Vosough, S., and Roncoli, C. Bridging the expectation vs reality gap on route choice behavior of e-bike users: Evidence from the Greater Helsinki Region in Finland. In *TRB 103rd Annual Meeting*, TRBAM-24-03308, 2024.
40. Sipetas, C., Roncoli, C., Chandakas, E., and Kaparias, I. Real-time on-board crowding estimation in public transport networks with multiple lines using non-exhaustive Automatic Passenger Counting data. In *TRB 103rd Annual Meeting*, TRBAM-24-03363, 2024.
41. Vitale, F. and Roncoli, C. Distributed trajectory optimization of connected and automated vehicles at signal-free intersections. In *TRB 103rd Annual Meeting*, TRBAM-24-00220, 2024.
42. Niroumand, R., Vosough, S., Rinaldi, M., Connors, R., and Roncoli, C. Beyond links: The power of path incentives in alleviating congestion and emissions in urban networks. In *hEART 2024: 12th Symposium of the European Association for Research in Transportation*, 2024.
43. Zhou, Z., Agriesti, S. A. M., Roncoli, C., Yfantis, L., Nahmias-Biran, B.-h., and Casas, J. Assessing the operational performance of ridesharing-enabled shared autonomous vehicles fleets. In *hEART 2024: 12th Symposium of the European Association for Research in Transportation*, 2024.
44. Agriesti, S. A. M., Roncoli, C., and Nahmias-Biran, B.-h. An equilibrium-seeking search algorithm for modeling the integration of supply and demand. In *hEART 2024: 12th Symposium of the European Association for Research in Transportation*, 2024.
45. Agriesti, S. A. M., Roncoli, C., and Nahmias-Biran, B.-h. Activity-based modeling to forecast and assess shifts in demand due to Automated Driving. In *17th International Conference on Travel Behavior Research (IATBR)*, 2024.
46. Sipetas, C., Roncoli, C., Chandakas, E., and Kaparias, I. Estimating on-board crowding in complex public transport networks from incomplete automatic passenger counts. In *TRC-30: Conference in Emerging Technologies in Transportation Systems*, 2024.
47. Niroumand, R., Kafashan, F., Hajibabai, L., Hajbabaie, A., and Roncoli, C. Efficient real-time CAV trajectory optimization at signal-free intersections using a greedy-based heuristic approach. In *TRC-30: Conference in Emerging Technologies in Transportation Systems*, 2024.
48. Niroumand, R., Vosough, S., Roncoli, C., Rinaldi, M., and Connors, R. Balancing congestion and emissions in urban networks via path-based incentives. In *5th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2024)*, 2024.

49. Haris, M., Roncoli, C., and Niroumand, R. Optimization-based urban network traffic management with mixed autonomy incorporating dynamic saturation rates. In *5th Symposium on Management of Future Motorway and Urban Traffic Systems (MFTS 2024)*, 2024.
50. Zhao, W., Roncoli, C., and Yildirimoglu, M. Bounded-METANET: A new bounded discrete-time second-order macroscopic traffic flow model. In *TRB 104th Annual Meeting*, Accepted.
51. Niroumand, R., Kafashan, F., Hajibabai, L., Hajbabaie, A., and Roncoli, C. A real-time greedy heuristic for CAV trajectory optimization through signal free intersections. In *TRB 104th Annual Meeting*, Accepted.
52. Agriesti, S. A. M., Roncoli, C., and Nahmias-Biran, B.-h. A simulation-based framework for quantifying potential AMoD demand loss due to operational constraints in mobility services. In *TRB 104th Annual Meeting*, Accepted.
53. Yang, Y., Liu, Y., and Roncoli, C. A macro-micro dual-layer approach for congestion mitigation in mixed traffic. In *TRB 104th Annual Meeting*, Accepted.
54. Niroumand, R., Vosough, S., Roncoli, C., Rinaldi, M., and Connors, R. Evaluating link and path incentives: Which is the most effective strategy for mitigating traffic congestion? In *TRB 104th Annual Meeting*, Accepted.
55. Vosough, S., Vol, O., and Roncoli, C. Social routing recommendations delivered via navigation apps: Why do drivers deviate from their stated intentions? In *TRB 104th Annual Meeting*, Accepted.
56. Zhu, B., Hu, S., Chen, X. M., Roncoli, C., and Lee, D.-H. Impact of Road Networks and Urban Functions on CO2 Emissions from Passenger Cars: An Empirical Case Study from Hangzhou. In *TRB 104th Annual Meeting*, Accepted.